

## Discussion on "SC RF Cavity Activities at FZJ" by Evgeny Zaplatin

One of the unusual features in Zaplatin's spoke designs was the use of choke-protected demountable endwalls. Questions from the audience asked about experience with using such chokes. Jefferson Lab had tried to use them on elliptical cavities. They had the expected low losses but major problems due to multipacting. KEK tried them for mounting their HOM couplers and saw strong multipacting due to desorbed gases. Zaplatin agreed that this concept needs more studies.

Questions were asked about the use of the proposed long 10-gap structures that have low velocity acceptance and stress the focusing lattice. Zaplatin indicated that the beam-dynamics for ESS was compatible with the length of the nominal 10-gap spoke resonator. But the beam-dynamics was never revisited for the added length due to the choke-protected endwalls.

Another aspect of using the long structures is the increased surface area. This increases the likelihood of defects in a structure that limit the potential performance of a cavity. Some people felt that this was an issue, but it was also pointed out that with better scanning techniques materials are better today than they were some years ago.

Zaplatin presented the design of a 700 MHz 3-gap spoke resonator that is build at Juelich right now. The fabrication is expected to be finished by the end of the year. A testing schedule is not known, as the test facility has to be shared with the higher priority tests for the SC injector for the COSY accelerator. Test should nevertheless be done by the summer of 2003.

Next the aperture of this resonator has been addressed. With 24 mm diameter this is seen as very small. Zaplatin pointed out that the nominal aperture for the ESS accelerator is 30 mm. Still, with a 10 mm beam size this is seen as challenging for halo issues. For example, RIA for a 3 mm beam uses 40 mm aperture.

Finally the reasoning for the 700 MHz frequency of this resonator has been asked. Zaplatin explained that this is driven by the ESS accelerator design. These spoke resonators are to be used after a funnel that requires doubling of the frequency of 350 MHz.